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ABSTRACT

An evaluation of INCE's Department of Correspondence Instruction, Caracas, Venezuela, was carried out to evaluate the present program, suggest ways in which the present program can be expanded, and advise the staff in the use of media and technology. The six chapters of the report are as follows: 1. Introduction; 2. Background to Development; 3. Evaluation of the Correspondence Instruction Department and Program; 4. Areas of Potential Growth--Development as the Aim of Education; 5. Evaluation and Quality Control; and 6. Guidelines for Phase II Development and Conclusion. Seven appendixes to the report provide information concerning Persons and Documents Consulted; INCE: Mission, Objectives; Department of Correspondence Instruction: Mission, Objectives; INCE: Structure in Which Department Operates; Department of Correspondence Instruction: Program Development Processes; Correspondence Curriculum and Courses; and Department of New Methods: Mission, Objectives. (CK)

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Report of

Assessment and Development--

INCE'S

Department of Correspondence Instruction

by

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The William H. Lighty Professor of Education
The University of Wisconsin-Extension

February, 1973

Caracas, Venezuela and
Madison, Wisconsin, U.S.A.

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Charles A. Wedemeyer

Report of

Assessment and Development

INCE'S

Department of Correspondence Instruction

Chapter 1. Introduction

1.1. Conditions of Reference. The present evaluation was undertaken under an Agreement negotiated between INCE and The University of Wisconsin-Extension. Authorization for the Agreement was included in a letter dated June, 1972, in which President Palacios indicated:

> . . ."I am pleased to inform you that our Executive Committee has approved your proposal to conduct a short evaluation-advisary and consultancy at INCE, during February, 1973. Thus, I will appreciate it very much if you make arrangements at your university in order to write a formal agreement with us."

1.2. Objectives of the Consultancy. The agreement among other things stated specific objectives for the study to be conducted at INCE regarding the department

of Instruction by Correspondence:

1. "To evaluate the present program accomplishments as a basis for further development, change or modification; and to plan a continuing evaluation program that can be employed by the INCE program staff."
2. "To suggest ways by which the present program can be expanded both in the number of participants and in the kinds of courses offered."
3. "To advise the staff in the use of media and technology which can be successfully employed both in correspondence courses and in residence instruction."

1.3. Dates of the Consultancy. The consultancy was carried out at INCE, in Caracas, between February 4 and February 17, and this Report was completed and mailed from Madison, Wisconsin, USA, fifteen days thereafter.

Chapter 2. Background to Development

2.1. The Development of the Correspondence Program at INCE. Instruction by Correspondence at INCE had its origin in 1964 when a team of INCE employees was given initial training in the theory and practice of independent study systems at the University of Wisconsin, under a USAID contract. The training was followed by a consultancy at INCE by the leader of the Wisconsin team, during which specific plans and arrangements were made for the development of the correspondence program at INCE.

2.2. The preparation of courses, training of staff, and completion of administrative structures and organization for the new unit were carried out by the INCE staff. The program was in regular operation by 1966. In 1966 the present consultant

returned briefly to further advise the INCE staff. Three Wisconsin subject matter consultants made brief visits to INCE in this early period, Professor George Rodman (Language), Professor Paul Grogan (Engineering), and Professor Joseph Kleiner (Commerce).

2.3. By 1973, the correspondence unit had achieved enrollments of 25,000 participants, served by a staff of 25, with an annual budget of over Bs 700,000. Originally assigned to the Division de Investigacion, de Formacion Professional, under the Direccion de Programmacion y Servicias Tecnicos, the correspondence instruction department in 1972 was assigned to the Direccion de Formacion en Empresas.

2.4. Three Phases of Development

2.4.1. The Department of Instruction by Correspondence is presently at the end of its first phase of growth. Phase I may be called the Initiation of the Program (1966-1973). At the present time the correspondence instruction program has been introduced and has grown to modest proportions, but in terms of its objectives and potential it is not yet fully established. Two additional phases of development are anticipated.

2.4.2. Phase II--Establishment of the Program (1973-1978-9). The second phase of development is likely to reach completion at the end of five or six years. Efforts to produce rapid growth could shorten this period to two or three years, but planned and moderate growth is to be preferred to crash programs. Enrollments at the end of Phase II will reach 45-50,000 participants.

2.4.3. Phase III, Consolidation of the Program (1980-). In Phase III, the Program will become fully consolidated within INCE and be broadly available in the training and education of Venezuelans. Enrollments in Phase III will eventually reach upwards of 75,000-80,000 participants.

2.5. Critical Factors in Development

2.5.1 Planning growth in terms of phases enables the administration to anticipate conditions related to development, and to a large extent to control them. Assuming no marked deterioration of fiscal support for INCE during the next decade, a condition which general economic indices would suggest is unlikely, the critical factors which will deserve attention are these:

1. risk related to new offerings, technological adoptions
2. volume of participants
3. overall cost of program
4. per unit cost of program
5. cyclical training requirements
6. gradual reduction in administrative costs, expect during periods of change-over in technology and accommodation to sustained, high order levels of aggregation
7. variation in instructional costs in response to new offerings, surges in enrollment, and adoptions of technology

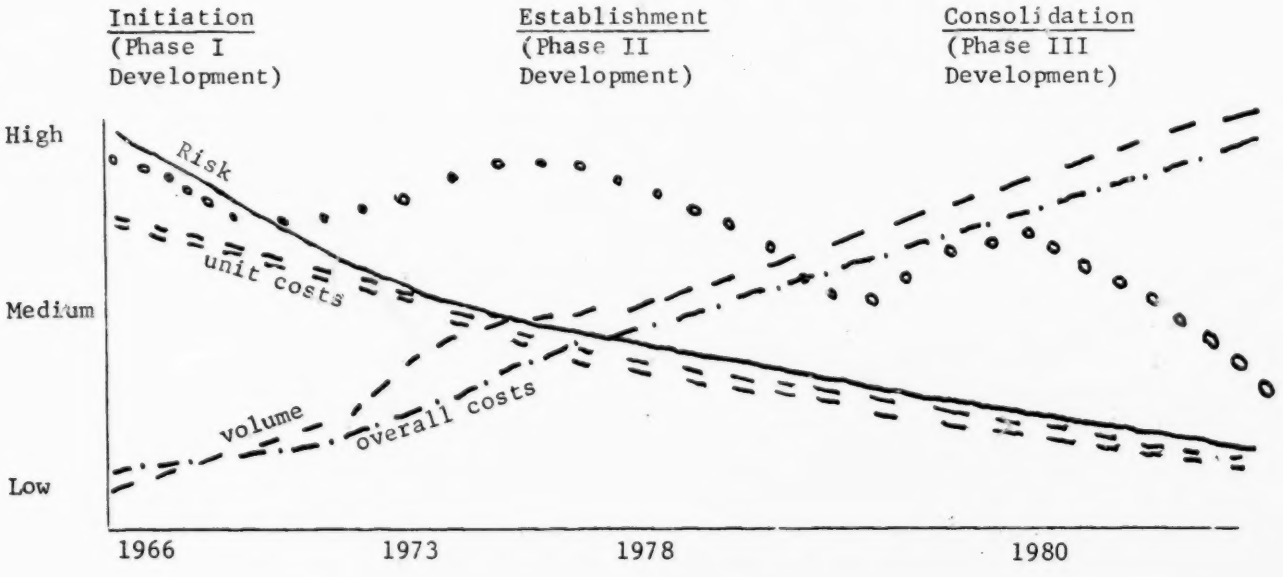
2.5.2. Critical factors do not operate separately. They are intimately connected in both cause and effect relationship. However, they may be studied separately and are of course amenable to administrative control and manipulation when their functions and relationships are understood.

2.5.3. The first five critical factors listed are important in carrying on planned development. In any organization there is continual stress between forces which drive towards the routinizing of operations, and the forces which drive towards innovation and development. Routinization is sought to reduce costs and internal stress; operations and procedures that are tested and successful can be "handed down" to personnel whose chief concerns are the conservation of the system and efficiency of service and operations. Innovation and development, on the other hand, are essential if the organization is to remain vital and relevant in

its services to a changing society. Planned development enables the administration to serve both these thrusts without excessive stress.

2.5.4. The Risk Factor in development is frequently the reason that organizations are hesitant to undertake new programs. New programs and innovations introduce risk because of start-up costs, low initial enrollments, piloting and testing costs, and special needs for expertise and training. In a planned development, however, the risk elements are confined to a relatively short period of time, and are gradually modulated by the normal processes of routinization and efficiency as soon as the new programs have stabilized.

2.5.5. The ideal development pattern is illustrated in Figure 1, which indicates the relationship between risk, volume or aggregation, overall cost, per unit and training costs in the three phased development pattern suggested for the INCE correspondence instruction unit.



Risk_____

Volume - - -

Overall costs —·—·—·

Unit cost = = =

Training costs o o o

Figure 1. Critical Factors in Phased Development of Correspondence Instruction Unit

2.5.6. In the initiation period risks are high because enrollment volumes are low, and hence per unit costs are high. However, overall costs are low. Training costs are high because the staff is learning new tasks and competencies. In the establishment period (i.e., the new programs are established, are operating satisfactorily) risk is only moderate, volume is moderately high, unit costs have been reduced, training costs are down, and overall costs have increased (because the program size has increased). In the consolidation period, risk is low, volume is up, unit costs are down, but overall costs have further increased with the growth of the program. Since the best index of efficiency is the unit cost (the cost of providing the service or product to an individual participant) the three phases suggested here yield a continuingly better per unit cost as time goes on, even though overall costs are higher. Risk, therefore, yields to efficiency-no-risk as the process unfolds. Training costs fluctuate according to many factors, including personnel policies, turn-over rates, as well as development policies.

2.5.7. Critical Factors can be observed and charted both for the overall program of the department and for individual projects, innovations or courses. Thus, while the department as a whole may be in the establishment phase of development overall, a particular new program may be in the initiation phase, and other programs may have moved into the consolidation phase. Since the department is presently as a whole in the establishment phase, with moderate volume, moderate overall cost and per unit cost, and hence only moderate risk, it is appropriate now to plan new and innovative developments because their impact will not seriously increase the risk element, and will provide the vital thrust towards relevancy and broadened service which the organization's mission and society's needs require. The stress factors, therefore, will be moderate.

2.5.8. The last two Critical Factors listed (reduction in administrative costs, and variation in instructional costs) are related to the five factors treated above, but also have their own subtle and independent determinants. For example, administrative costs are likely to be high during the initiation of a program when volume is low, risk high, and personnel new to the program are learning their jobs. As the program grows, becomes established, and experience teaches personnel the most effective ways of carrying on their work, routinization begins and efficiency rises. For a period of time administrative costs will fall as the program grows, since new positions, if needed, will tend to be at the lower levels where routines have begun to replace what in the beginning were de novo activities. But this general cost decline in administration will not continue indefinitely as the program grows. Each time new projects are undertaken, in fact, administrative stress may increase, requiring some of the administrative time which had been released from routinized processes during establishment. Administration thus (in a healthy, growing organization) responds to a series of surges first requiring a high degree of attention, and then relegated to routinized processes. Planned development anticipates these surges, and by so doing keeps administrative costs at a relatively stable level. Even so, however, the effect of technological change and increased enrollments to high level aggregation introduces new stress factors in administration.

2.5.9. When an organization undertakes a change in the basic technology of operations, there is a surge of administrative costs almost unrelated to volume or aggregation. These are likely to be temporary, depending however on the nature of the technology undertaken. Aggregation, on the other hand, regardless of technology, may well introduce higher administrative costs that are permanent simply because they are linked to the sheer size and

complexity of operations. A rule of thumb from industry suggests that an effective administrator cannot effectively supervise, directly, more than five or six subordinate units. Thus, when growth brings about an aggregation that requires this level of administrative activity, further growth will require increased administrative costs if efficiency is to be maintained and stress kept to a tolerable level. If administration is strengthened then a further period of growth can occur until a further critical aggregation level is reached at which efficiency and stress again require an adjustment to administration. In a planned development, administrative needs ought to be anticipated, and adequate adjustments made just prior to reaching the next significant level of aggregation and stress, if that is possible.

2.5.10. Instructional costs will vary more directly according to enrollment surges, new projects under development, and applications of new technology. These needs can generally be more readily anticipated and built into the department budget. Technological application may require higher instructional costs during the start-up phase, but may reduce costs at a later stage. Planned development thus anticipates periods when instructors will be fully involved in training and development, the subsequent release of involvement as tasks can be accommodated to a new process or a new technology, and the phasing in of new training and development. If the administration can plan orderly development, instructional costs will tend to be fairly stable on a proportionate basis, just as administrative costs can be stabilized even though periodic fluctuations occur.

2.5.11. The developmental phases suggested for the Correspondence Instruction unit are thought to be reasonably consonant with the requirements for orderly growth and the control of the critical factors listed. Later sections on continuing evaluation, guidelines for Phase II, and recommendations, will include specific suggestions related to this theory of development.

Chapter 3. Evaluation of the Correspondence Instruction Department and Program

3.1. Mission, Objectives of INCE. The overall mission and objectives of INCE are, of course, the basic ideational platform from which the Instruction by Correspondence program springs. (See Appendix II, INCE Mission, Objectives.) The INCE mission statement is a clear mandate from the Government of Venezuela making INCE the responsible institution for the training of Venezuelan manpower in the fields of industry, commerce, agriculture and services, as well as in literacy and basic education for workers. INCE's programs are therefore directed to workers, apprentices and the unemployed, at all levels from the unskilled and illiterate to management. While the INCE mission is primarily vocational in nature, the literacy and general education objectives relate INCE to broader social and educational development issues, and indicate training and education to keep participants, even when unemployed, in continuing education programs for future development and employment. Thus INCE programs are a means to immediate employment, or are way stations towards ultimate employment; but in both instances the general education and literacy aspects are important to the social mission of INCE.

3.2. Mission, Objectives, Functions of the Correspondence Instruction Department

3.2.1. As a unit of the INCE Division of Training Within Industry (and formerly a unit of the Division of Program Development and Technical Services) the Correspondence Instruction Department is committed to implementing INCE's overall mission and goals. The Department's specific objectives and functions (See Appendix III) are useful not only in guiding activities, but also in assessing the development and impact of the department and its programs. The department's objectives call for general development in the promotion of correspondence instruction within INCE; research in the application of the correspondence method at INCE centers, in business and industry, and for the improvement of method; administration of the correspondence courses as part of the

varied INCE program of instruction and in service to organizations that request courses; and instruction via the correspondence method. The department's functions are the determination of courses to be offered by correspondence, carrying on experimental projects to assess and improve effectiveness, participating in various professional activities to spread understanding of the method, planning the promotion of courses, grading and evaluating participant lesson responses and examinations, guiding participants, and maintaining controls for quality and effectiveness.

3.2.2. The department's objectives and functions are well stated and appear to be generally adequate for its development through Phase I. The absence of specific reference to instruction as a function may be merely an oversight, inasmuch as the function of grading, evaluating and guiding participants may imply the instructional function. However, the omission of mention of the instructional function may also indicate a narrow view of the role of the correspondence teacher. While the teacher in the correspondence method enters the teaching-learning sequence later than the teacher in a conventional classroom (after the initial learning activity has been undertaken by the participant and an assignment has been completed and submitted) he is no less a teacher, and his duties or functions ought to go beyond grading and assessing. The correspondence teacher ought to enter into a full relationship with the learner, including as desirable the individualization of instruction. Perhaps this role is implied in the stated function of "guiding" the participant, but it would seem desirable that a stronger instructional function be perceived for the department, as much for achieving a broader conceptualization of instruction as for growth in effectiveness of instruction as a primary function of the department.

3.3. Structure and Organization.

3.3.1. The Correspondence Instruction Department appears to have an efficient structure and organization. Within the department the structure reflects the vertical structure of INCE itself. (See Appensix IV, Structure and Organization.) The department chief reports to the Director of the Division, who reports to the President. Communications upward and downward seem to fulfill the requirements of efficiency. There also appears to be ample accessibility to the vertical channel as needed for the normal flow of questions, problems, issues, directives and policy related to the activity of the unit. The officials in the vertical chain seem to be sensitive to communications needs, accessible and open with respect to suggestions and problems originating above or below.

3.3.2. In the department the work is organized into administrative and instructional units according to program needs and functions. In addition to the department chief, there are an assistant program administrator and three assistant administrators. Clerical and secretarial staff raise the administrative roster to twelve persons. Fourteen persons are employed in the instructional category. There are job descriptions for all personnel.

3.3.3. The department chief functions with apparent ease on both sides of the work front, administrative and instructional. The organization gives evidences of working well, and there is a strong impression of morale and comradely feeling among the department members despite the cramped and crowded conditions within which they work.

3.3.4. The basic INCE vertical structure, common to most complex institutions, is essentially an administrative expression of the need for efficient transfer and communication of authority from the top down, and for the transfer and communication of questions, problems and issues that need adjudication or other kinds of decisions, from the working level upwards. The assumption behind such vertical structures is that the work to be done in any sub unit can be adequately

supported and nurtured within the confines of the vertical structure. Exceptions, which require support from outside the immediate vertical structure, go upward from the work unit to the division director and President, after which they may be referred to the Executive Committee if novel questions are involved, or may go directly to the director of another division for response or action, and then down the vertical chain in that division to the work unit that must supply services or support. The response must follow the same route in reverse.

3.3.5. If work would remain simple and stay within the administrative categories that are set up for the efficient transfer and communication of authority the vertical structure would function admirably. But modern instructional programs (the main purpose and work of INCE) defy simplicity, and require support and active involvement from a number of different specialty units which (structurally, organizationally and administratively) tend to be remote from the program itself. Rather than being an occasional exception, the need to establish lateral connections with other specialty units to get the work done properly thus tends to become the rule for certain kinds of instructional development programs.

3.3.6. When the need for lateral involvement becomes nearly continuous for certain kinds of activities, an extraordinary stress is placed on the vertical structure. The great advantage and efficiency of the vertical structure (the transfer and communication of authority within the vertical cell or division) becomes a barrier to the work functions which require lateral unit involvement because the authority lines are broken and diffused. It becomes difficult to get work done involving units in other structures because the authority communication grid is not designed to function that way. In a sense the institution's authority security system is breached in the same way as when fixed defensive artillery is attacked from a position which cannot be accommodated in aiming the pieces, requiring extraordinary defensive maneuvers.

3.3.7. The problem of structure and organization encountered here is classic; there are two thrusts in the institution, both good and vital to success in achieving overall mission; yet these two thrusts are in conflict with each other. Resolution of the problem seems to require the invention of a pathway within the vertical structure which not only permits but encourages functions on a lateral basis. A mechanism for this purpose is suggested in section 4.6.ff.

3.4. Budget

3.4.1. The department's 1973 budget approves program and administrative expenditures of Bs 715,975. The breakdown by budget categories is administration 214,320 (29.94%); teaching 263,280 (36.77%); other costs (supplies, expense, paper, printing, etc.) 238,375 (33.29%). For the initiation phase of the program, the percentage proportions indicated are appropriate.

3.4.2. As the program expands in Phase II (Establishment) it is expected that the proportion of the budget committed to administration will diminish as the proportion for teaching and other costs increase. (See discussion of critical risk factors, Section 2.5.ff; quality control section, Chapter 5.) However, as pointed out earlier, administrative costs are sensitive to high orders of aggregation and the start-up activities of technological change-over, and should be expected to peak during such periods even though a long term trend towards lowering the proportion of administrative costs may be expected.

3.4.3. Instructional staff costs should be expected to rise, partly because the growth of the program will require more instructors, partly because the program will make use of new technologies and media (requiring either higher employment competencies upon entrance or training on the job, or both), and partly because the present level of instructor pay seems quite low. All the instructors

in the department are paid the same salary at present, and salaries have not been increased, apparently, for about eighteen months. A salary scale that does not recognize individual merit, where shown, through incentive or merit increases, and that does not periodically recognize inflationary processes and the effect of experience on the job, will tend to encourage high turnover rates. If the labor supply greatly exceeds the demand, turnover may be blunted, but low instructor morale may then result. Either eventuality could be debilitating for a program demanding high level, high quality output from its workers.

3.5. Administrative and instructional Processes

3.5.1. The processes evolved in the department for the orderly carrying out of administrative and instructional functions are well conceived and apparently effective. The processes examined in detail were:

a) administrative

recruiting participants

registration

record keeping and report writing

budgeting

production of materials and examinations

production of bulletins

security system for examinations

distribution/collection of materials and examinations

processing of participant responses and examinations

public information activities

liaison within INCE for coordination

self evaluation and quality control

planning for development

processing certificates for satisfactory completions

supervision of employees; staff training

b) instructional

determination of curricula and courses to be offered

development of materials of instruction, examinations

development of instructional processes

instruction on the basis of responses; advising and grading

quality control; records, reports

liaison with subject matter authorities

setting achievement standards

awarding certificates for satisfactory completion

maintaining, revising materials as needed

professional reports, articles

training and upgrading of instructional staff

3.5.2. The nature of the department's activities requires that the chief be involved in both kinds of processes; indeed, in many situations he is effective primarily because he represents both instruction and administration. As the program grows, however, some hard choices will have to be made, for it may not always be possible or desirable for the chief department administrator to be also the chief instructional authority. Many of the administrative and instructional activities listed above are presently mingled in execution. It would seem inevitable that as growth occurs a wider separation of administrative and instructional functions will follow. The shape of things to come is foreshadowed in the separate internal processes evolving for both these functions. (See Appendix V for a summary of processes.)

3.6. Curriculum, Courses, and Materials

3.6.1. The department has two curricula, General Culture, and Trade Technologies. The general culture curriculum includes such courses as Civics, the Geography of Venezuela, Industrial Safety, Mathematics and other subject centered courses basic to any trade or vocation. In the trade technologies curriculum the

courses are specifically focused on the skills and technologies basic to certain trades; for example, in Automobile Mechanics the motor, brake, fuel pump, tires, etc. Some courses in both curricula are offered at successive levels of mastery or competence. (See Appendix VI for the list of courses approved in the department budget for 1973.) In 1972 more than twenty courses were described in the Catálogo de Cursos por Correspondencio. A number of new courses are in process of development.

3.6.2. The division of courses between two curricula--the general and cultural, and the specific trade technology--is sound and in harmony with the mission of INCE and the correspondence instruction department. That over twenty courses (with others under development) were prepared and offered during the initiating phase of program development is a satisfactory indication of solid growth. There is opportunity for great growth in the future as the needs for new courses are analysed, the courses approved, materials prepared and participants recruited and registered.

3.6.3. Courses vary in length, depending upon level of participant and complexity of subject matter. Need for a course is presently signalled by requests from the Venezuelan groups which are taxed for the support of INCE and are served by INCE. Requests may come from employers' groups, professional associations and occupational areas such as banks, insurance, business, textiles, etc. At INCE policy formation for the institution as a whole regarding programs are first set by the National Administrative Council, composed of thirteen members representing government, industry, commerce, labor, education and the citizen at large. Below the Council, INCE's administrative structure functions to carry out policy.

3.6.4. Course development in the department requires budgetary administrative approval. There is also an important relationship between INCE and CINTERFOR, the official agency which sets the standards of requirement for different trades.

CINTERFOR's studies are directly reflected in the determination of course objectives, content and minimal performance criteria for most courses no matter how taught. Thus there are widely accepted standards to which all courses, including those conducted by correspondence, must conform.

3.6.5. Courses in the department make use of prepared materials including the study guide, textual materials, graphics, kits of practice materials and various printed forms for the responses of participants. An examination of the study guides used by the department reveals that there is a basic format consisting of

course identification and requirements

objectives of the course

content teaching sections in units, each with specific objectives

assignments for participants

directions for submission of assignments (including pre-printed forms, envelopes, etc.)

directions for requesting examinations

3.6.6. The more than twenty study guides examined were rated on a number of criteria, yielding these general evaluations:

practicality - excellent

use of related textual ma erials - good to excellent

use of graphics - excellent

quality of printing and production - excellent

adaptation to participant level, needs - good

clarity and completeness of instructions to participant - good

clarity of instructional process - good

attractiveness - excellent

general development - good to excellent

No study guide examined rated lower than good. This is an admirable indication of quality. No study guide was characterized by flabbyness, loose development and over-writing; instead they reflect a policy of simple straight-forwardness and economy of development.

3.6.7. No media other than print, graphics and writing are presently used. The potential for the use of other media will be taken up in section 4.3. Self-check tests are not used in the study guides, and will be commented on later. Courses are maintained and revised according to problems that learners and instructors have with particular assignments. Small changes are made by printing insertion sheets to go out with regular study guides; these and more substantial changes are made in the complete revisions as deemed necessary. No routine schedule for review of materials is followed, but should be instituted.

3.6.8. The mobile training centers that are used in less populous areas provide services to correspondence participants. This is an excellent concept, and can be employed in even more effective ways in the future to help bridge the distance between INCE centers and programs, and participants in remote locations.

3.7. The Participants and Participant Services

3.7.1. Participants in the correspondence instruction program are classified into three categories:

1. unemployed youth, 16-21 years of age
2. apprentices, 14-18 years of age
3. workers taking extra training on-the-job, or preparing for upgrading

When it is considered that approximately 60% of the population of Venezuela

is below the age of 21 years, that persistence in the public schools is low, and that unemployment is a special hazard for youth, the reasons for the participant categories served become clear. Participants are generally recruited through INCE's thirty centers located throughout Venezuela. Separate centers serve unemployed youth training for construction trades; unemployed, apprentices and workers in industrial trades: and all categories in commerce. Ten mobile centers are used to take training opportunities to the unemployed youth in less populous areas where regular centers cannot be justified. Correspondence courses are designed to be used as part of a center's training program as well as for participants who do not have access to a center.

3.7.2. Course materials are usually distributed to participants through centers, and assignments are returned to center instructors for transferance to INCE. Lessons are returned via the same channel, along with reports to Center Staff on the achievement or problems encountered by correspondence students. Thus lesson submission and return with instruction and grading takes less than one week, anywhere in the country. Participants who do not have a center enrollment are taught through the mails with a similar receipt and turn around time.

3.7.3. The link with centers for recruitment, registration, supervision and guidance of the participant is an excellent practice. Much of the success of the program is traceable to the efforts of center administrators and teachers to help the participants and make the system work.

3.7.4. Because of the excellent cooperation of center personnel, the correspondence instruction department has not had to develop extensive student advisory services in Caracas. As the program grows and participants are drawn more widely, and from populations which do not have a relationship with a center, the central department staff will have to supply such learners with the guidance and services now primarily received through the centers. This will require careful planning for it is essential to the success of the program.

3.8. Use of Media

3.8.1. No media other than print, writing and graphics are presently used in the correspondence instruction program, but informal talks regarding the application of media to the program have already been held with divisional administrators, personnel in the Department of New Methods, and the data processing and computer programming office. The resources exist within INCE to initiate a wider use of media and technology in all forms of instruction, including correspondence. (See 4.3.)

3.9. Productivity Indices

3.9.1. Various records compiled by the department on a regular basis since its inception may be analysed to provide indices of production in the department. The most important production indices are those reporting participant enrollment and disposition, the participant course completion rate, the department instruction load by assignment and examination, and the per participant cost of instruction. These indices give any observer a quick perception of the dimensions of work performed by the department in its major functional area (teaching the participant) and insight into the department's effectiveness and efficiency.

3.9.2. Participant Enrollment and Disposition. The mission of the department is the instruction of participants at a quality level that meets or exceeds the standards of Venezuelan employers, CINTERFOR and INCE. To find out how well the department is fulfilling its mission,enrollments (how many participants the program is reaching) and disposition (what happens to the participants) must be examined. These statistics also supply an overall indication of work load and department productivity.

3.9.3. Since the initiation of the program in 1966 the department has kept annual statistics which report enrollment and disposition of participants. The annual statistics have been combined for the years 1966-1972 to provide an overall, cumulative record for these seven years, as shown in Figure 2.

Figure 3

		1966	1967	1968	1969	1970	1971	1972	Total
Participants Continuing Start of year		---	374	1723	1801	1631	2391	3663	
New Enrollments		734	2604	5803	9029	14,087	20,156	20,943	73,356
Completion	Total	347	1002	4052	7245	10,546	15,381	15,403	53,976
	Successful	327	906	3499	6639	9940	14,764	14,807	50,882
	Failed	20	96	553	606	606	617	596	3094
Dropouts		13	253	1673	1954	2781	3503	3779	13,956
Continuing End of Year		374	1723	1801	1631	2391	3663	5424	

Figure 2. Participant Enrollment and Disposition, 1966-1972

3.9.4. The department statistics show steady growth in new enrollments, 1966-72, with a total participant load for that period of 73,356. Completions total 53,976, with 50,882 successful and 3094 unsuccessful. Dropouts totaled 13,956.

3.9.5. Participant Completion Rate. Gross statistics are useful, but analysis provides more important insight. Because correspondence students do not attend classes, so the common measurement of educational participation (attendance figures) is not possible. Instead, the measure of participation is completion; that is, the number of learners who persisted in the learning activities through to the completion of the course. Completion statistics thus give an index of participation roughly equivalent to an index of voluntary class attendance. (The completion statistic for the autonomous correspondence student is often erroneously compared with compulsory attendance figures yielded by regular schools. Such a comparison is meaningless because the things compared--autonomous, non-compulsory participation, and compulsory attendance--are dissimilar categories.)

3.9.6. The INCE correspondence completion rate is that percentage of participants in the total enrollment who complete the full course, including the examination. In the first seven years of the correspondence instruction program at INCE, the completion rate is thus 73.58%. This is a very creditable rate, indicating that nearly three-fourths of the correspondence participants persist in learning activities through the examination. In view of the fact that correspondence participants are not compelled to enroll or to continue (they are to that extent autonomous) this is a good indication that learners are motivated, sincere and find the courses and instruction challenging and interesting. This is a higher completion rate than is found at most correspondence institutions throughout the world. In terms of persistence and disposition, the INCE completion rate is comparable to that at the Open University of Great Britain. (In other respects --objectives, level of student, type of curriculum and courses--the two institutions are of course in different categories.)

3.9.7. Gross completion must be analysed further to discern actual disposition of the participant. Did he succeed or fail? INCE completing participants have a 94.27% rate of success. Failures occur at the rate of 5.73%. (INCE failures have not only competed all the course activities, but have also completed two examinations, since it is policy to permit a failing participant to take a second examination before final disposition.) The success-failure dispositions are determined according to INCE policy, based on and to some extent exceeding the requirements of employers and CINTERFOR recommendations. A participant's average achievement score on all his assignments counts for 50% of his final grade; his examination score counts for the other 50%. A total final score of 50% or over is required for passing and certification. Figure 3 graphically illustrates the success-failure rates achieved by the department.

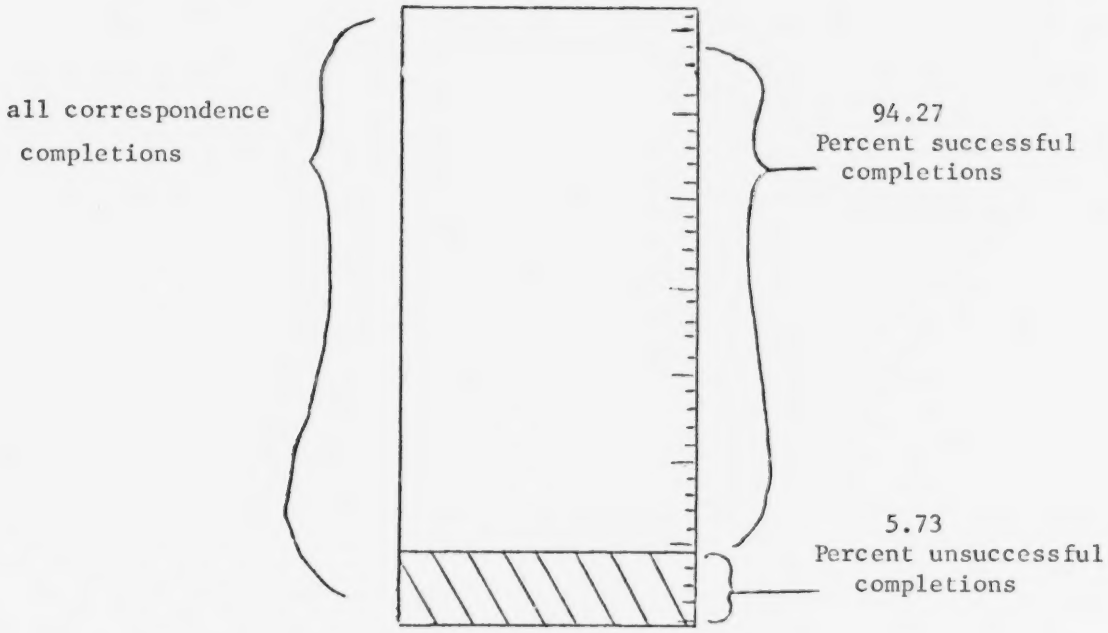


Figure 3. Success and Failure Rates of Completing Participants

3.9.8. Two remaining categories of participants must now be accounted for. Those who dropped out during the course (who did not complete assignments and examinations) numbered 13,956 out of a total enrollment of 73,356; the drop out rate is thus 19.02%. In any non-compulsory educational program this would be considered a low rate of attrition. The participants in the category of "continuing" either at the beginning or end of the year are learners who paced themselves differently from the bulk of the participants, but since they had neither completed nor dropped out, they are counted, and instructed, as continuing, for they are a part of the instructional load carried by the department. Continuing participants amount to slightly more than 7% of the total enrollment. The continuing participant category is a temporary classification only, used in statistical reports at the start and end of the year to account for all participants in a rational way. During the year continuing participants will have final dispositions of completed (successful or failed) or drop out. The continuing category is generally

not found in classroom statistics where pace is established for the group as a whole. Correspondence instruction, on the other hand, has the advantage of allowing persons to set their own pace, within limits, as an important accommodation to individual differences and situations. Without such accommodation those participants in the continuing category would very likely be forced into the drop out or failure columns. This would certainly not help those persons who need to learn, but because of circumstances and situation require more time than others.

3.9.9. Figure 4 is a graphic representation of the total participant population of the department according to the various indices discussed.

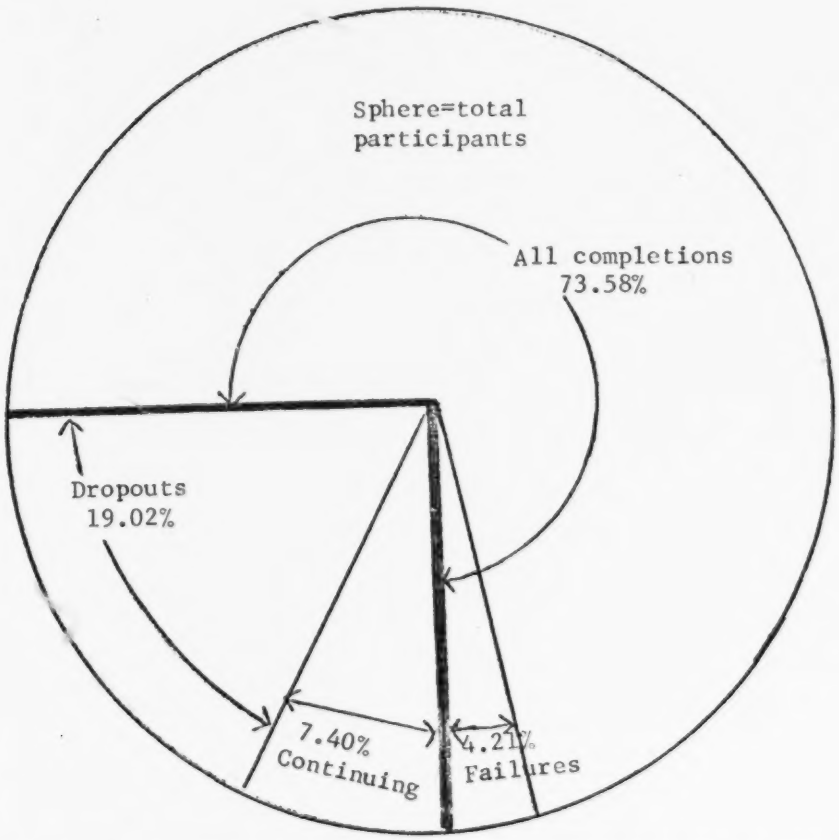


Figure 4. Total Participant Population and Disposition by Categories.

3.9.10. Another productivity index that is useful in assessing the work load of a correspondence department is the number of assignments and examinations "taught" during the year. The assignment from the participant requires the teacher not only to grade the work done, but more important, to use the work offered as a basis for teaching. This is where the art of the correspondence teacher is best expressed. Responding to an assignment is thus an act of instruction as well as assessing progress. In 1972 the department instructors taught through 84,347 lessons, and 16,399 examinations, a total of 100,746 learner and teacher exchanges made, assessed and recorded.

3.9.11. There is one other productivity index that is useful in assessing an activity: the cost per unit produced. Since departmental budgets in a complex institution generally are not designed for cost accounting purposes a true and accurate cost per unit produced cannot usually be obtained from the simple use of budget and enrollment figures. Other costs in teaching participants are placed elsewhere in the institution, and hence would not be found in the department budget (overall administration, accounting, personnel and other services, for example). Nevertheless, if the department budget is considered as an expression of the direct program costs (administrative, instructional, supplies and expense) a per unit cost can be obtained which is useful in the department as another index of productivity. For example, the total enrollment anticipated for 1973 is 25,000 participants; the budget allocation is Bs 715,975. Hence the planned or anticipated per participant program cost is Bs 28.63. Since enrollment anticipations are only estimates, and budget allocations likewise, it is useful at the end of the year to recompute on the basis of actuals in both categories to find out what has happened to estimated per unit costs. It is even more revealing to examine per unit costs for each separate course, if accounting figures lend themselves to this purpose. Similar studies can be made to break out administrative or instructional costs in each course or program. When

refined by careful cost accounting procedures, such indices enable staff to pinpoint trouble areas, and identify programs or activities that operate with consistent efficiency and productivity. Per unit cost comparisons between programs should not be made unless standard cost accounting methods are employed throughout the institution. However, for internal departmental planning and evaluation, even informal cost per unit indices are useful.

3.9.12. The productivity indices examined in this section indicate a healthy state of development in the program and a high level of productivity for the department.

3.10. Summary Evaluation and Limitations on Development

3.10.1. In summary, the INCE correspondence instruction program is found to be in a healthy state of development, carrying a high work load and producing at very moderate costs. Participants are being instructed in an effective and efficient manner. The major INCE and department mission and objectives are thus being achieved, and further development is highly promising. Administration, management and control is of consistent high quality, and the methodology of instruction and the departmental processes are successful.

3.10.2. Not all of the department objectives, however, are being achieved, so there is need, in the new phase of development, for improvement particularly in the professional study of the problems that program operation reveal. Limitations on development appear to be of two kinds: first, the need for an acceptance throughout INCE of the appropriateness and advantages of this form of learning, and second, the need to establish closer coordinating arrangements between the various departments within INCE which must collaborate in the development of new courses and new methods of teaching and communicating for the correspondence instruction department as well as

others. The alternatives to broader acceptance and coordinated departmental efforts are not attractive: either letting the correspondence instruction department continue at its initial stage of development, despite its solid contributions and promise for the future, or authorize the correspondence instruction department to undertake the development of its own expertise in areas now assigned to other limits. The first alternative is unthinkable in an institution of INCE's overall competence and vision; the second would be a violation of INCE's own structure and organization, and additionally too expensive to consider seriously.

Chapter 4. Areas of Potential Growth--Development as the Aim of Education

4.1. Curricula and Courses. Presently the curricula and courses of the department are primarily intended for the learner who has completed approximately sixth grade, and is preparing for a career in the trades. This is an important priority in terms of Venezuela's population and national needs. In looking ahead towards 1980 the present offerings of the department might be expanded in several ways:

1. Enlarge the trade oriented curricula and offerings. INCE's overall programs in this area are more extensive than the present correspondence courses,and offer a ready base of trade and technical expertise which could be employed to extend correspondence offerings, especially in the apprenticeship division.
2. Following the excellent practice already established in cooperation with INCE centers, develop INCE curricula which combines class study for motivation, guidance and

skill training in shops and laboratories, with correspondence study for the background, theoretical and cognitive learnings in each area taught. This combination of approaches has proven to be particularly desirable in strengthening overall curricular opportunities, making programs more accessible, reducing pressure on classroom and building facilities, making better use of instructor time, and reducing instructional and operating costs through reaching higher levels of aggregation (volume) without concommitant building costs. Instructors, administrators and counselors will need some additional training during the development of these combined group and individual participant oriented courses. Participants will find the added convenience and effectiveness of such courses an advantage.

3. Develop curricula and courses in the literacy area in cooperation with other agencies working in this field. Literacy ought to be conceived as a means, not an end. It is a means to better living, coping more effectively with the problems of life. Consequently basic literacy-coping courses for the peasant who will make his life on the land, and the urban dweller who will make his life in the city, are needed. The content of the courses would adequately suit INCE's mission of preparing youth and adults for employment in agriculture, service, trades, industry, commerce or government. Such courses would lead participants eventually into more specific and specialized courses at higher levels.

4. Develop courses for the higher range of occupations in the employment fields served by INCE. There is a particular need, throughout Venezuela, for training in the management of all kinds of enterprises. Large corporations are generally able to

bring in qualified management at upper and even middle levels, but the Venezuelan who wants to be owner-manager, starting small and building towards a secure business, often has insufficient training to manage his business and fails because he has no access to a means of learning management that can accommodate to his demanding work day.

Similarly the small manager whose enterprise is growing finds that he or his employees lack the necessary skills to accomplish the next stage in growth, which often requires more sophisticated technology and know-how, cost accounting instead of day-to-day bookkeeping, a knowledge of commercial law, etc.

5. Develop courses for government employees, including some kinds of teachers. The INCE mission and objectives are clearly a mandate to instruct the worker wherever he may be employed. Government (local, state, national) is one of the largest employers in Venezuela. Its efficiency is important to all Venezuelans who are touched by government, whether employed there or not. Some of the areas of government in which employees will need continual upgrading are: the postal service, agriculture, health and social service, penal and correctional, armed forces, police and the administration of justice, tax and revenue agencies, and the multitude of inspection functions performed by modern government.

Teachers in the vocational, agricultural, industrial, commercial and governmental areas are scarce, and could well receive training from INCE.

4.2. Participants. As the preceding section suggests, the population of participants that should be served by the INCE correspondence program has great

potential for growth.

4.3. Media and technology. The future development of the department--indeed, the whole of INCE--is linked to the role that media and technology will play in education in the next decade. Venezuela has a particularly good potential in this area. There is already the beginning of a progressive national policy regarding the use of media for the public enlightenment, and a mix of public and commerical facilities in electronic communications. While sales and the entertainment industry will dominate the commercial radio and television channels, the national channels remain to be more fully exploited for education and the public good. INCE has the national mission, support and reputation which should make it possible to begin to operate via radio and television in little more than the time that is required to develop appropriate courses and materials. INCE already has specialized departments and personnel whose mission it is to expand INCE teaching programs into new media. (See Appendix VII, Mission Objectives of Department of New Methods.)

Venturing into radio and television on a regular basis will require agreements with the national media authorities for the use of airways, and production and recording facilities. It will probably be necessary to augment staff and production facilities at INCE, but this should not be done until full agreement with the national authorities has been reached regarding who is to do what.

4.3.1. If the agreement calls for production and direction of radio/TV programs by the national authorities at their facilities, then INCE should follow up with a requirement that the producer-directors become full members of the course development teams at INCE so that they can carry out their jobs with intelligence and insight respecting educational objectives. It is usually desirable that the educational (INCE) members of the team undergo training in course development for media, and the

producer-director (media) members undergo training in educational program development. After separate initial training, then the two groups should be brought together as development teams which will work together and share responsibility thereafter on specific course development projects.

4.3.2. Prominent on the teams at INCE would be the specialist who develops materials for the independent, distant learner, the subject matter specialist, the media specialist and a specialist in evaluation. If the course being developed is to have primary use with independent distant learners, the specialist in that program should be the chairman-coordinator of the team. If the course is intended primarily for use in the INCE Centers (not on open circuit) the specialist from that area should coordinate.

4.3.3. The great potential at INCE, however, is for the development of mediated courses which will serve both conventional classroom and independent learners. Almost every course developed for media (and print and correspondence are media) could have multiple use in classrooms as well. Such a condition for development does not have to wait for use of the mass media, but is equally appropriate now. The best way to prepare such multiple purpose courses is through the course team approach.

4.3.4. Print, writing, radio and television are rather obvious in their potential for instruction. It should be pointed out, however, that there is a cluster of special skills in the presentation of informational material that is the basis of all good mediated instruction. That base is an understanding of, and competence in, audio-visual principles and practices. One of the reasons--perhaps the chief reason--that mass media programs seem to be more effective than other approaches is simply that the use of media requires a great deal of advance planning, preparation and tryout; and at every step the developers are consciously seeking

for processes and presentational sequences that will engage the participant's senses, especially hearing and seeing. If as much care were lavished on ordinary day-to-day teaching, it, too would be exceptional in impact and effectiveness. The INCE specialists in audio-visual media ought to be involved in team course development for the contributions they can make, whether courses are designed for mass media or not.

4.3.5. The telephone is fast becoming a reliable and inexpensive means of person to person communication in Venezuela. It has the advantage of being two-way audio, giving instant feedback to separated teachers and learners. The more glamorous mass entertainment media have tended to impress people with their potential for education, whereas the ubiquitious telephone is often overlooked. Yet, except for the moment of transmission at a radio or television station, most mass media signals are carried by telephone circuits, by wire or short wave. Telephones at different sites (such as the INCE Centers) can be easily linked together into educational telephone networks, and instruction regularly carried at relatively low cost once the nation's basic grid has been installed. The telephone can also transmit visuals and writing at far lower cost than television, something that radio cannot do. It can also carry computer signals; so a basic educational telephone network can also serve a computer function.

4.3.6. The computer is one of the most versatile of the media. It can be used for storage, retrieval, management and processing of data and systems, and for instruction. At INCE there is need to employ the computer in the management of the department program. This use of the computer (with the guidance and assistance of the INCE computer specialists) would enable the department to reduce the manual tasks now necessary to manage the complex process of correspondence instruction. From the point of registration on through to the preparation of certificates of

completion, including the processing of lessons and examinations, the computer could handle much of the work load. An optical scanner of lessons could "read" and score the lessons, and even explain and correct errors made. The information thus stored would be available for instructor or administrative use on the problems of particular courses or units, as well as other kinds of reporting.

4.3.7. At a later time, the computer could be used for more sophisticated instruction in an interactive mode with specific students. The instructor time released by the computer can then be put into other processes--stepped up course development and maintenance, more individual work with students, the improvement of courses, and research into the methods of instruction, and problems of learning and development.

4.3.8. Very likely within the next decade the educational satellite will make its appearance in South America. INCE, and particularly the correspondence instruction program, ought to be involved in planning, developing and presenting courses via the satellite. Experience gained in the other media will have immediate applicability in teaching via the satellite.

4.4. The rationale for the use of media and technology should be clear to all those who are involved in their development and use in instruction. Media and technology are merely sophisticated communications means for completing and enriching the loop between teachers and learners.

4.4.1. The INCE correspondence system will operate with success only for participants who are responsive to learning through the medium of the written word. Since this restriction has been the primary mission of the department, the limitation has perhaps not been seen as serious. However, there are serious limitations to the use of only a single channel of communication. Even for participants who are good at sensing communication through only one channel, it is important that every effort be made to move from a single channel system to a multiple channel system. The goal here is that of involving as

directly as possible every sense that can be employed in learning.

4.4.2. Participants enroll in correspondence courses who feel themselves adequate in learning through a single channel; those who do not feel so adequate either do not enroll or once they have enrolled, they fail to submit evidence of making progress. In a sense, then, reliance upon a single channel (the written word) serves that portion of the populace which is sensitive to the written word, but does not serve that portion of the populace which requires other or multiple channels for learning. Quite obviously it would seem that an institution with the special function of INCE should serve all of the qualified members of society who need it.

4.4.3. The written or printed word is only one technology which can be used in serving the distant participant. Printing is the oldest of the academic technologies, and through centuries of time has become accepted. The newer technologies--radio, telephone, television, programmed learning, semi-automated and automated audio-visual systems, the computer and computer assisted instruction, and the employment of the "systems" approach to the development of instructional programs--all of these are now appropriate for the enrichment of learning processes and programs since they add additional channels to the single channel used in correspondence teaching.

4.4.4. It is not only desirable that multiple channels be used for effectiveness in communicating, but also that different channels be used on occasion simply for a change of pace, a change of medium to mark a change of context, or a change of perspective. Each such change has the effect of stimulus both to student and teacher. To be sure, change shouldn't be instituted for change itself; rather a medium should be selected for the particular contribution it can make to the teaching of a particular concept, skill, or judgement, and employed for that specific purpose in a specific way. If such a rationale is used for the selection and employment of different media and channels, then there will be a variety of communication between teacher and participant. This variety in

itself will be motivational, and will give to both teacher and student the multiple avenues of communication that are essential to enriched learning.

4.4.5. The use of various media in teaching and learning is not likely to be as difficult for teachers in an independent study program as it would be for teachers in conventional classes. The professor who has been teaching via the written word has already learned that he must anticipate the students' questions and problems; he has learned that he must prepare motivational units, and evaluate students on a regular basis to maintain adequate control of the learning, and to know what is going on.

4.4.6.. Having learned these basic principles, however, he is ready to use other media. What he has already learned about the use of the written word, consciously or not, caused him to separate the acts of teaching and learning. Indeed, these are separate functions even under the most ideal circumstances (such as a Socratic dialogue) since each of these functions is lodged in a different person. Once a teacher senses that teaching and learning are indeed separate functions, then he can conceive of the separated act of teaching or learning, carried on without regard to the place or the time occupied by either teacher or learner. If he is sensitive to such teaching and learning, he begins to adapt his approach to which might be called a "learner-oriented approach," teaching that is oriented to the goals and processes used by the learner, and to the problems likely to be encountered by the learner.

4.4.7. Learner-oriented materials are characterized by clear objectives, by clear definitions, by an employment of the general learning theories by which all persons learn, by the provision of multiple channels of communication, by the provision of frequent check tests by which the student can gauge his own progress, by enrichment through audio or visual media, by the inclusion of feedback mechanisms whereby learner and teacher remain in a dialogue on important points or matters no matter how widely separated, by a point of view which is concerned more with the objectives for learning than with the details of content, although

content details have a prominent place in the materials developed. The learner-oriented approach is important in any form of learning; it becomes essential as student and teacher are physically separated in time and space.

4.4.8. It is precisely because the teacher and the learner are so widely separated in space and time in independent learning that this adjustment to the learner, his nature, his needs and his difficulties, that the teacher must make his orientation to the learner in advance of the beginning of learning by the student; that is--at the time when the materials are developed.

4.4.9. There is a good stage of readiness at INCE for expanded experimentation with media and educational technology. Experimentation should precide broad use. In general, the process of adoption of new ways of doing things follows this pattern:

a. an innovator proposes and demonstrates a radical solution to a problem. (Heresy)

b. leaders adapt the approach to their work. (Experimentation)

c. followers apply the approach on a broad base. (Acceptance)

d. the new approach becomes conventional. (The New Law)

4.4.10. There are sufficient leaders at INCE to begin the experimentation--the adaptation--of media and technology to INCE's instructional system.

4.4.11. The "systems approach" is central to the process suggested. Essentially the systems approach is a goal-oriented process involving these steps:

1. setting clear, behavioral objectives
2. designing the unit or experiment
3. determining the content of the teaching unit
4. selecting the media

5. testing the pilot project
6. modifying as necessary
7. developing and producing the materials (the software) and joining these to the hardware
8. evaluating

4.4.12. Planning for the use of media and technology will give faculty members, operating from a team approach (content person or persons, media specialist or specialists) an opportunity to study the organization of a basic lesson. What are the objectives; what, in behavioral terms, do you want the learners to be able to do as a result of the lesson? What content, what substance do they need? What practices or exercise must they have to accomplish the purpose? What understanding and retention level do you think is necessary--recognition, application, generalization, rote mastery? At what points is feedback from the student necessary to check progress, problems? From the teacher to the student to adapt to individual differences, to start dialogues? How can you evaluate achievement? How can you know that the teacher and student have done a good job and deserve positive reinforcement? What problems in the life condition of the student must be taken into consideration in planning and teaching a lesson? How should lessons or courses be "phased" so that the tasks given to students are not too large, or so small as to approach meaningless busy work?

4.4.13. Questions such as these are appropriate for the teacher in any format; they are essential for the teacher of distant students; and they are imperative in planning lessons which use media and technology.

4.4.14. In summary, the INCE correspondence program should rapidly expand its experimentation with media and technology to improve its instructional system, to provide multiple channels for learning, and to broaden the student body it must serve in accomplishing its mission. Following a systems approach, ex-

perimentation will lead to the application of media to regular instruction. Instructors who have learned to prepare study guides for teaching students by mail are ready, and possess skills in developing materials, that lead easily to an expansion of the use of technology.

4.5. Research and Development. In its initial phase of development, the correspondence instruction department has not carried out its objectives related to research. (See Appendix III.) It is understandable that during the period in which courses are being developed and offered for the first time staff are being trained, and all the administrative and instructional processes are being worked out, there would be little time left, and not yet much experience on which to develop studies of participants, methodology and technique, problem analyses, market analyses and innovations in media technology. In Phase II of the department's development, Establishment, it will be important that such studies be undertaken. They are important for the continuing success of the program; but they are just as important in achieving that elusive state of being established. Many persons, including professional educators, will be skeptical and even threatened by the growth of another, different instructional system. Good research studies will help to convince them that the program is soundly conceived and worthy of recognition and even emulation.

4.5.1. Some persons, however, can never be convinced through rational studies no matter how significant, because their antipathy or hostility to new ways of doing things is basically emotional. To win over such persons other approaches are needed as well as carefully done research and development.

4.6. Interdivisional Collaboration with other INCE Departments

4.6.1. Many persons cannot gain confidence in a new approach until they have had direct experience with it. Yet such persons will frequently ignore and resist any opportunity to collaborate in the new venture. Collaboration--especially across divisional boundaries--thus becomes uncertain. As observed earlier (Section 3.3f) the vertical structure of INCE makes lateral cross divisional collaboration and cooperation difficult in itself. The insecure and threatened colleague may place blame on the divisional structure to rationalize his not offering, or being able, to collaborate fully. It is thus important, for two closely related reasons, to work out official arrangements for lateral collaboration:

1. To obtain the degree of interdivisional, interdisciplinary collaboration required to carry on increasingly complex and sophisticated programs and operations in which specialists are diffused through several divisions.
2. To remove as effectively as possible any excuse for personnel not collaborating and cooperating across divisional boundaries.

4.6.2. In the Phase II (Establishment) development of the department it will be essential that lateral, cross-divisional collaboration with other departments be carried on regularly. If the correspondence instruction department is to grow and develop in accordance with its potential it will need expertise and assistance from other departments: New Methods, Audio-visual, Computer Science, Instructor Training, Printing, Evaluation, Library and the many departments in which there are programs, facilities and subject matter expertise for the development of multiple use courses.

4.6.3. Perhaps the most expeditious and effective way to solve the problem of obtaining lateral collaboration in a vertical structure is to think, first, of the functions that are to be performed. The functions are those of numerous specialists diffused through INCE working together on complex developmental problems.

4.6.4. This could be accomplished through the creation of a new functional center, in which personnel from various divisions and departments can work together on the specific projects that require close collaboration. The functional center is a concept, not a building or even a specific place within a building. It is a facilitating arrangement for getting work done. The persons who work in the functional center may work there only occasionally, or consistently. As projects come and go, different kinds of expertise are needed, and so personnel in the center will change. People will work there only when they are needed because of the requirements of the work to be done. Consequently the center must have flexibility. It will tend towards structural informality rather than formality. It must be wholly goal, objective and function oriented.

4.6.5. If function is the purpose, the center must be organized so that it gets its work done in an efficient, even hard-nosed manner. It must have sufficient funds as well as personnel to draw upon, careful "systems" planning, access to all needed institutional support, realistic schedules for accomplishing

specific goals worked backwards from dates carefully set for completion of projects, and continual review/assessment of projects in process.

4.6.6. The requirements cited above are difficult to achieve in a vertical authority structure, but easier to achieve in a functional center. The reasons for this lie in the nature of the center and the nature of human beings. Vertical structures, as was pointed out earlier, are in part edifices to protect the security of authority. As such they tend to become secure places for the workers in them. People need security and it is proper that they work in a secure structure where they can follow career-lines that offer lifetime satisfactions. The functional center cannot and should not be a secure, lifetime job for anyone. Bringing people together from their regular divisional structures thus focuses on specific projects of concern to all. But the mix of people tends to introduce both freedom and constraint: freedom from the rigidities of the vertical structure, and constraint for getting the job done because there's no long-term future in the center. Furthermore, since the collaborators in the center are drawn from different authority structures, each person tends to act more critically, more creatively than when working with colleagues in the same authority structure. Consequently there is likely to be a more open and competitive relationship among colleagues in the functional center. Credit for the work accomplished is earned back in the regular division, since that is where the careers are based, and that is where the programs are operated.

4.6.7. The functional center, then, is a device for getting people to work together laterally, across divisional boundaries, on specific projects that are critical to the success of the home departments and divisions. The functional center, then, does not have to be concerned about the usual administrative hierarchy; each person in it carries on a function that is his by reason of his location in some department, a function that can not

be successfully performed entirely by itself but requiring contributions and collaboration from others.

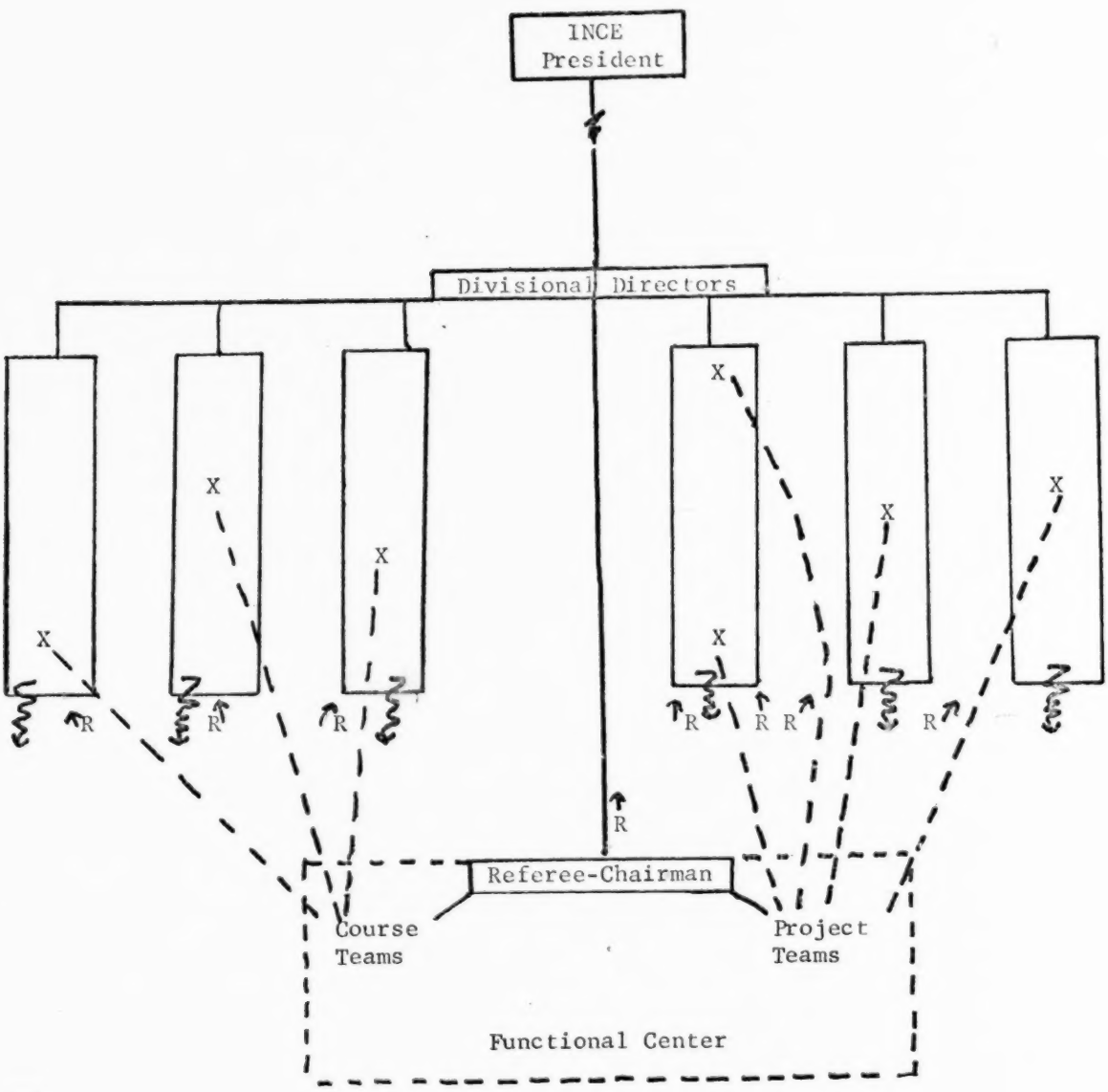
4.6.8. It should be a mark of recognition to be able to work in the functional center. Assignment there should imply that the person has an important expertise, that he is competent and motivated, that he can be trusted to represent his department or division creditably in jointly undertaken projects, that this contributions will be significant, noted and rewarded by his home department and division. If a person assigned to a functional center does not contribute, this lack is noted by all, and because the center is not concerned with long-time security, the person can be released, and replaced by someone else. Of course, a person so released has not earned any credit in his home department either; so the environment in the center will tend to encourage a high level of participation and contribution. It is obvious, also, that persons should not be assigned to a functional center unless there is reasonable certainty that the person can perform as required. Hence in a short time the workers assigned to the center begin to see themselves (and are seen by others) as an elite group. Morale tends to be high and productivity above normal.

4.6.9. Although the functional center does not have to concern itself with divisional hierarchical authority, it does have to have authority to operate. This authority should come initially from the President, with delegations or assignments of personnel made with division directors. An adequate device for lateral relationships among division directors already exists in the weekly meetings of division directors; and the Executive Committee is a further device to unite the policy, presidential and administrative strands of management; so the authority patterns at the top seem adequately developed to cope with the requirements for lateral collaboration at the project and developmental level.

4.6.10. The center will need a referee, chairman or director, who should be appointed by the President with the concurrence of the division directors. The referee or chairman should report to the division directors and President. The center head need not be a regular, permanent job; it might be rotated among a number of competent people, depending on the projects undertaken. Rotating the headship (whatever it is called) would have the advantage of preventing the development of another empire within INCE, which would alter the authority structure that now exists. This, however, is a policy matter which the President, the Council and the division directors must decide in the light of their more intimate knowledge of INCE and the changes that occur as the center functions.

4.6.11. Each member of the center should continue to report to his department chief or division director in the usual way. In fact, one of the advantages of a functional center is that it should not interfere with normal administrative reporting since the person involved is actually carrying out an authorized function required by his regular job. Hence divisional directors or department chiefs should not be threatened by assignment of a person to a functional unit; their authority is still secure, and the person assigned looks to them for all the usual support, reporting, career and promotion aspects of his work. And since the divisional directors are also wired in at the top through the weekly meetings with the President, and the receipt of reports from the chairman or referee, their authority is not diminished but augmented. However, since the work of the functional unit is cross-divisional, the President must be the ultimate authority, as he is anyway.

4.6.12. The concept of the functional center is illustrated in Figure 5.



Vertical Divisions

X Persons designated by President & Directors to Functional Center

R Report Flow

Program Operations

Figure 5. Concept of Functional, Cross Divisional Center

4.6.13. The center will obtain its funds for particular projects (course development, other projects) in the usual ways: from the President upon presentation of proposal, and from the Divisions which already have funds for the functions to be carried out. In the planning of a project the persons in the functional unit will have to formally designate the specific amounts they are authorized to commit to the projects; appeals for additional support may go to specific divisional directors if appropriate, or to the President.

4.6.14. When persons are assigned to the functional unit an entry should be made in the personnel record with an estimate of the approximate time that will be required for the person to complete his work--perhaps in percentage such as 30%, 50% or more--for a calendar period such as a week, month, six months or whatever.

4.6.15. The center should operate under a set of objectives. Since it is a little unrealistic to define objectives without functional involvement, perhaps the first appointees to the center should be given not only a specific developmental project, but also the task of suggesting the objectives of the center that will best define the work goals of the center. In the meantime the persons assigned to the center could undertake their work according to these general objectives:

1. To work together to carry out the functions for which we are individually responsible in our home units that these functions will be better and more quickly carried out through the assistance of other specialists.
2. To bring the varied resources of INCE to bear on the solution of developmental problems in instruction, development of courses, communications and media, methodologies, and materials of instruction.
3. To collaborate in producing new courses, new instructional

and learning formats and programs for multiple as well as single program use.

4. To collaborate in research, experimentation and piloting as a base for improving the effectiveness and accessibility of INCE programs.

4.6.16. The name of the functional center ought to be chosen by INCE to designate it's special function.

4.6.17. Education as Development. The aim of all education is development--of individual persons, of society and its institutions. Development within INCE and the department must be carefully nourished in order that development outside INCE (the individual, the society, institutions) can be accelerated.

5. Evaluation and Quality Control

5.1. Society and the needs of society are not static. Hence a program serving the educational needs of society must not be static either. The educational program must be dynamic, and in harmony with the changing, growing, modifying needs of the society served. This does not mean that some programs cannot remain as they are if the social and educational needs are being met with quality and efficiency. The question is how to determine whether programs meet these criteria, and how to continually assess the changing needs that programs are designed to serve.

5.2. Quality control is an essential element of the well organized and professionally administered department. To control (that is, manage) the quality of the work produced by the department requires a priority objective--a recognition of the high importance of quality control, an agreement/acceptance by all concerned of the actions necessary (the plan) to achieve and maintain that control, and the installation of the processes themselves (the action) which carry out the quality control.

5.3. Quality control is one element in the larger matter of evaluation, which is already recognized by INCE as an essential activity since a special evaluation section exists to provide management with reliable assessment

information on its activities. A centralized evaluation section, however, poses a dilemma: it is proper that evaluation be conducted by a central agency to minimize the effect of conflict of interest in assessment; yet unless the central agency has sufficient staff competent in many areas, it is unlikely to be able to maintain a continuing evaluation of all the activities that it should serve. Consequently, a middle course, involving both the program agency and the evaluation service is generally most desirable.

5.4. Hence quality control (a part of continuing evaluation) ought to be built into the program unit. The evaluation service ought to provide to the program unit a periodic review of quality control processes, and recommendations based upon assessment, both to the program activity head, and to INCE management.

5.5. The responsibility for quality control is thus fixed in the program activity management; overall assessment and evaluation on a periodic basis is the responsibility of the central evaluation service, assisted by program management, with comprehensive assessments routed to the program and to INCE management as an aid, for each, in planning, development and decision making.

5.6. The relationship between program manager, program unit, and the evaluation service is expressed in Figure 6.

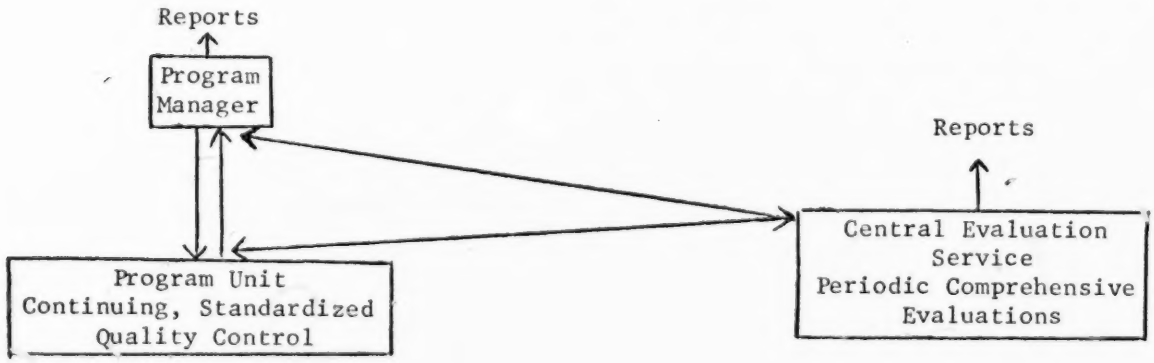


Figure 6. Relationship Between Department and Evaluation Service in Quality Control and Evaluation Activities

5.7. A continuing quality control process, initiated and operated by the department under the chief or program manager, is outlined below.

Quality Control by Program Unit

(Related to stated objectives and functions of Project Unit; see Appendix III)

Objective	Function	Criteria	Measures
1	1,4,7	1. Do courses selected and produced meet the needs of: INCE participants? the nation?	1. enrollment statistics 2. completion statistics 3. quality indices (level of participant performance) 4. participant follow up survey and profile (continuing) 5. national needs and INCE policy 6. field director survey (annual) 7. participant employment indice (annual)
2,3	2, 3, 7	2. What problems in the development, use and application of methodology have been identified and solved through research and experimental studies?	1. The identification of problems has been made a fixed responsibility of some person. 2. Time is allotted for a person or persons to define problems, set up formal studies, gather data, formulate hypothetical solutions, test validity and apply solution. 3. Ad hoc functional arrangements made with outside specialists for specific research, experimental, or problem solving activities. 4. Research, experimental and problem solving studies have been reported at professional conferences, and/or have been published. 5. INCE specialists in correspondence study are sought for consultation, advice, leadership in a larger sphere (regional, national, international). 6. Publications and reports go beyond the descriptive to problem solving on a generalized and theoretical basis for broader application. 7. Problems identified and studied do not persist; or new studies are undertaken to achieve solution.
4	7	3. Is the correspondence department administered efficiently in terms of its mission, objectives, and functions?	1. enrollment statistics 2. completion statistics 3. lesson load statistics 4. participant quality indices 5. collaboration with other related departments as needed for use of staff, resources 6. regular reporting

Objective	Function	Criteria	Measures
			7. Development/growth according to planned and systematic strategy and implementation 8. Productivity increasing proportional with development phases I, II, III. 9. Cost of administration diminishing proportional with development phases I, II, III. 10. Quality control measures in force and standardized. 11. Comprehensive evaluation in collaboration with evaluation unit at periodic intervals for decision making with respect to mission/objectives and functional success/achievement.
5	5, 6	4. Does the correspondence instruction provided succeed in: a) motivating participants? b) being relevant to participant situation goals, aspiracions, problems? c) communicating information, process and content? d) satisfying the needs of participants and national needs? e) maintaining a quality level at least as high as conventional instruction? f) employing methods, techniques, media and materials that reach participants effectively, ie., give easy access and provide satisfactory feedback? g) defining problems needing study? h) mobilizing INCE resources from various units for resourceful development of materials, processes, content? i) applying instructional know-how effectively? j) applying results of partipation in professional training and upgrading, continuing education, independent learning, and attendance at conferences and meetings of a professional nature?	1. enrollment statistics (cumulative) 2. dropout, failure statistics (cumulative) 3. review, inspection of all materials 4. maintenance of problem file for correction of materials at points needed? Removal of obsolete elements 5. Development/maintenance/revision on regular schedule. 6. Materials, content, approach, design from participant situation and profile analyses. (Continuing and cumulative) 7. Training and upgrading programs for instructors, others. 8. Training, upgrading for course writers, developers. 9. Training, upgrading for field representatives/director of centers, advisers to participants. 10. Close study at periodic intervals of time factors in feedback loops. 11. Spot checking at intervals of lessons taught by instructors for fairness, accuracy, completeness, positive and encouraging attitude, motivational relevance.

Objective	Function	Criteria	Measures
		5. Does the learning of the participants: a) meet INCE quality levels at least as well as conventional methods? b) satisfy practical needs of participants for entry into job marketplace or job upward mobility? c) provide regular feedback to instructors and course developers/maintainers for the surveillance of overall goals, methods, materials, etc? d) carry to the mastery level for concepts, processes, information and skills that are essential to practical use and application in life? e) coordinate with other learnings obtained elsewhere so as to be reinforcing and to contribute to continuing learning through whatever methods? f) indicate adequate and successful use of communications media and strong dependence upon sense learning for development of ability to abstract and apply as necessary in job performance? g) occur through access systems designed to minimize loss of time, reduce confusion, and emphasize practical usefulness of learnings? h) yield to analysis so that the range of individual successes and failures is clearly visible to the instructor for individualization of instruction, differentiation of responses, and clear and justifiable identification of failure, average and exceptionally successful participants? i) enable exceptionally successful students to be singled out for congratulation? j) permit analysis for learner problems, leading to maintenance, revision and further development?	1. enrollment statistics 2. drop-out, failure statistics 3. examination/lesson statistics 4. compare quality level of participant achievements with other programs. 5. Survey of standard feedback of participant attitude towards each course, with demographic data (for profile), problems, satisfaction/dissatisfaction. 6. Follow up survey (annual) of success of participant drop outs, failures--re: entry/change in job market; further learnings. Later re-assessment of course taken--add to profile. 7. Proportion of new enrollments that are repeat participants by own choice. 8. Periodic (annual or bi-annual) survey of field directors re: effectiveness of courses, progress of studies, etc. (anonymous) 9. Periodic (annual or bi-annual) survey of instructors, course developers of learning problems, effectiveness of process, materials and usefulness of course (anonymous) 10. Identification of top 10% of participants in success, and special recognition of, linked with profile, job entry and upgrading data. (Promotion, public relations.) Suggestions for improvement. 11. Survey of instructor lessons for evidence of adaptation to individual differences. 12. Study of lesson service--time/etc. 13. Maintenance of problem file for revision/development. 14. Definitions of problems in need of study. 15. Evidence (attendance, writing, reporting) of professional development gained from attendance at conferences and meetings. 16. Review panel for methods, materials.

Objectives	Function	Criteria	Measures
		k) satisfy the expectations as well as needs of participants? l) reflect the application (in methods, materials, processes) of knowledge of how learning occurs?	

5.8. Summary of measures recommended:

Time Frame

1. Reports of Statistics: enrollment, current & cumulative
   completion, current & cumulative
   dropouts, current & cumulative
   lesson loads, current & cumulative
   exam loads, current & cumulative
   satisfactory
   unsatisfactory (failed)
   monthly, with semi-annual and annual summary (for department, director, publicity)

2. Course Statistics Analysis
   enrollment
   completion
   dropouts
   lessons loads
   exam loads
   } from above
   problems noted by participants
   problems noted by instructors
   problems noted by field directors
   problems noted by supervisors
   semi annual; or annual (for department, supervisors, course developers training and development)

3. Methods/materials review panel (1 administrator-Chairman
   one instructor
   one course writer/developer
   one participant
   one producer)
   (use of data compiled in #2; Recommendations? Actions on?
   annual Review each course every 2 or 3 years; oftener if problems occur; less frequent if course proceeds with few problems. Review Panel thus looks at 1/2 or 1/3 of courses annually.

4. Identification of problems requiring special study (ie., research, experimentation piloting, etc.)
   annual (for budgeting/planning)

5. Field director survey
   special problems
   assess meeting needs of students
   suggestions for new courses, modification of old
   annual

6. Participant Survey - continuing (part of each course enrollent; completed at time of final exam; anonymous)

Probe: problems
attitudes
satisfaction of needs
suggestions for improvement
practicality
future plans for learning
personal data

(Report to department chairman)

7. Participant Follow-up Survey

(Probability sample only)
a) successful completers
b) unsuccessful completers (compare)
c) dropouts (add items getting getting at <u>why</u>)

repeat some of questions in survey 6.

Present status:
employed in area
not employed in area
employed in other area

one study annually of completers, non-completers for improvement of instruction, courses, revisions, training, etc. (Report to department chairman)

8. Course revision/development panel

1 writer
1 supervisor
1 methods/technology
1 administrator (chairman)

annual; act on information from other measures; prepare report for planning, budgeting, training

9. Comparative Statistics Study

comparison of enrollment, persistence, success and quality indices vis a vis correspondence instruction and other types of instruction. Also (if known) disposition/ie., what happens to participant <u>after</u> course. . .employed?)
comparative unit costs (see #10)
top 5%-10% of students by name for special congratulations.

annual (for department chairman, public release)

10. Productivity Survey

work output of department
and individual members of department
proportional cost (%) of administration
teaching
materials/other costs

annual
cumulative comparison for trends

(for use in publicity; planning and budgeting for developing decision making quality control
compare #9.

(to department chairman)

11. Comprehensive Evaluation
by Evaluation unit and correspondence instruction unit

every three years

12. Report of Feedback Time a) center participants b) mail participants		annual to department chairman note problems identified; action taken
13. Profile of Participants--different levels different courses from continuing course survey data and follow-up data		annual to department chairman for use in development, revision, planning, methodology, materials, training, reporting
14. Instructor Survey (anonymous) for problems suggestions attitudes new course ideas etc.		annual to department chairman
15. Lesson Review Panel (random sample review)	1 administrator, chairman 2 instructors 1 field representative 1 part-time or former participant or professional	for department chairman training planning, development
16. Periodic staff meetings to discuss any of above, reports of reading, conference, meetings, policy, training, etc. . . .or periodic staff bulletin to carry same function demonstrations. (By department chairman and collaboration of other specialists as needed, both from within and without the department.)		3 times/year with sufficient time to explore problems/ statistics, reports in depth, discuss, sense direction of training needed.

6. Guidelines for Phase II Development; Conclusion

6.1. While the most difficult development phase (Phase I, Initiation) has been completed successfully, the second phase will pose problems that are more complex. Guidelines for Phase II may be helpful. In fact, after reflecting on the Guidelines suggested below, the correspondence instruction department might be involved in suggesting its own guidelines for the period 1973-1978 or 9. Involvement will hasten awareness and readiness, and begin to bring staff resources to bear on the challenges of development that face the department in view of the potentials for growth. Furthermore, guidelines developed indigenously will undoubtedly be more realistic.

6.2. In the second phase of development the Guidelines to be followed might include:

1. Broadening and deepening of the curricula and courses offered at all levels.
2. A growing program at middle and top levels for the purpose both of specific training and also of providing tracks for continuous learning throughout adulthood. As participants complete specific job oriented courses at entry levels, there must be concern for development of courses that can build upon the experience and success of first courses, and that provide participants with access to continuing learning for economic and social mobility.
3. Quality control processes will be improved in scope as part of a continuing evaluation program carried on in part by the staff, and in part by the INCE evaluation unit.
4. Administrative management processes and decision-making will be based increasingly on quality control and evaluation. In addition, there will be the introduction of computer systems for the management and control of processes, developed in connection with the Office of Systems and Data Processing.
5. Instructional processes will be broadened to include other channels of communication for the teacher and the participant, in collaboration with the Department of New Methods. In particular, audio and visual channels will be developed for use with the correspondence-print media and processes so that the formats resulting may be used either in classroom type learning situations, or by independent distant

learners.

6. At a time when the medium of instruction is no longer solely print-correspondence, it will be appropriate to consider changing the name of the program to something more closely identifying the activity, such as:
   The Department of Programs for Distant Learners, or,
   The Department of Mediated Instructional Programs.
7. Growth should be planned to accommodate increases of about 5,000 enrollments per year, leading to an annual enrollment in 1978-9 of approximately 45-50,000. Since the potential for growth is greater than this there would seem to be no problem of maintaining this rate of development, which is roughly the same as that achieved between 1966-1972. Factors which will accelerate growth will be present in the second phase that were not present in the first: the program will become more familiar and recognized; skill and experience in creating new programs will reduce developmental time-lags; administrative and instructional processes, now tested and at an efficiency level that is creditable, will be further refined; quality control and productivity will through sheer experience increase.

   Thus the end of Phase II will see the present program doubled in size.
8. If the INCE administration approves the concept and formation of a lateral cross-divisional functional center, some of the present processes in the department will be modified

by participation with collaborators from other departments. Change is always with us, but if change can make it easier for us to do our jobs more effectively, change is a friend and ally, and should be welcomed.

6.3. Summary-Conclusion. The INCE correspondence instruction department has achieved a very creditable status in its initial phase. Its potential for further growth and development is excellent. The department should take a leadership role in employing new media, and should enlist the computer first, for management and control of administrative processes,and as a readiness stage for the second use of computers in the instructional process itself. The use of media and technology requires a device that will encourage and ensure lateral collaboration among specialized departments within INCE, and a concept model is suggested to accomplish that objective. Continuing evaluation should proceed through more rigorous quality control exercised within the department, and collaboration with the central evaluation department for periodic comprehensive assessment. The second phase of development will introduce more subtle, sophisticated and complex developmental problems. By the end of this decade the program will have doubled, and the third phase of development (consolidation) will be starting. It seems likely that the program originating in this department could eventually reach 100,000 participants in Venezuela. But that will depend upon many factors, not the least of which are the support and confidence of INCE itself, and the competence, creativity and efficiency of the department in the many substantive areas which this report has touched on.

6.4. Even a dedicated and knowledgeable consultant from the outside makes errors of judgment and understanding. Whatever errors of fact or perception appear in this report, they are the responsibility solely of the consultant.

6.4.1. It should be remembered throughout this report, and especially in connection with the assessment of printed materials, that the reviewer does not read Spanish as a mother tongue, and even the careful, laborious examination of the study guides by someone not fully comfortable or competent in the language raises questions of reliability. The judgments expressed by the reviewer are not only partly subjective , but derived from evidence through language not his own.

6.4.2. It is hoped that the many dedicated, friendly, perceptive persons at INCE who assisted in the gathering and interpretation of data will out of their first-hand (and therefore superior) knowledge correct whatever errors may appear. But more important, it is hoped that the personnel at INCE in the correspondence instruction department and elsewhere will attack the problems and opportunities cited here with the same vision and courage that has made the department and INCE highly respected leaders in the education of adults.

3/5/73 Caracas, Venezuela, and
Madison, Wisconsin, U.S.A.

Appendix I

Persons and Documents Consulted at INCE

1. Persons Consulted:

Dr. Oscar Palacios, President
Sr. Federico Cisnaros, Secretary General
Sr. Emilio Asapchi, Director, Training Within Industry
Sr. Miguel Angelo Perez, Director, Office of Systems and Data Processing
Sr. Amador Hernandez, Acting Director, Industry Programs and Centers
Sr. Hiram Padron, Chief, Department of Correspondence Instruction
Sr. Alberto Gibbs, Chief, Department of New Methods
Dr. Bertoldo Brito, Chief, Department of Training
Sr. Leopold Brito, Department of Systems and Data Processing, Analysis and Programming
Sr. Miguel Rodriquez, Department of Audio Visual Training

2. Documents Consulted:

Laws of Venezuela relating to the establishment of INCE

INCE Organigrama Estructural, June, 1972

Position Descriptions for Personnel in Department of Correspondence Instruction, 1972.

Presupuesto, 1973, Department of Correspondence Instruction

Department Statistical Records, annual and cumulative, 1966-72

All Course Study Guides and other materials

Random sampling of Participant assignments, various courses, after instruction and grading

Administrative and Participant Forms

"INCE Calendario de Cursos," El Nacional, January, 1973

"Development of Correspondence Instruction at INCE," Hiram Padron, INCE, 1972

"Instruccion por Correspondencia: A Necessity," Hiram Padron, INCE, 1972

"Produccion Año 1972," Dirección de Formacion en Empresas, Instrucción por Correspondencia, INCE, 1972.

"Desarrollo de la Instruccion por Correspondencia en el INCE," Hiram Padron, INCE, 1971.

"Centros INCE," INCE, undated

"INCE Molds Venezuela's Human Capital," Lillian Morganti, The Daily Journal, February 25, 1972.

"Catálogo de Cursos por Correspondencia," INCE, 1972

Appendix II

INCE Mission, Objectives

GOALS

INCE is responsible for training manpower in the fields of industry, commerce, agriculture and services, as well as teaching literacy and basic education to workers. The participants are workers, apprentices and unemployed young people, and include all levels from unskilled workers to managers.

The Institute's goals, as stated in its Law, are the following:

1. Promote the vocational training of workers, contribute to the training of skilled manpower, and carry out training programs for unemployed youth.

2. Contribute to the training of the rural school graduates in agricultural skills, in order to prepare workers trained in the efficient use of land and other renewable natural resources.

3. Promote and develop the apprenticeship of young workers. The Institute may carry out this goal by setting up schools or organizing apprenticeship training in the shops and factories, according to the regulations established, in cooperation with the employers.

4. Cooperate in the campaign against illiteracy and contribute to the improvement of general primary education, in so far as it may benefit vocational training in the country.

5. Prepare and produce the teaching material required for the vocational training of workers.

(Translated into English by Alberto Gibbs)
2/9/73

Appendix III

Correspondence Instruction Department

Objectives

1. To promote correspondence courses at INCE Programs.

2. Research on the application of correspondence courses at INCE Centers, business and industry.

3. Research to improve the method.

4. Administer the correspondence courses at the different programs of INCE and organizations that ask for.

5. Serve as the central group of correspondence instruction at INCE.

Functions

1. To determinate the courses that should be given by correspondence.

2. To carry out experimental projects to check the effectiveness of the different techniques used.

3. Participation in Conferences, Seminars and courses in order to let the method be known.

4. To plan the promotion of the courses.

5. Grade and evaluate the written assignement, final examinations of participants taking correspondence courses.

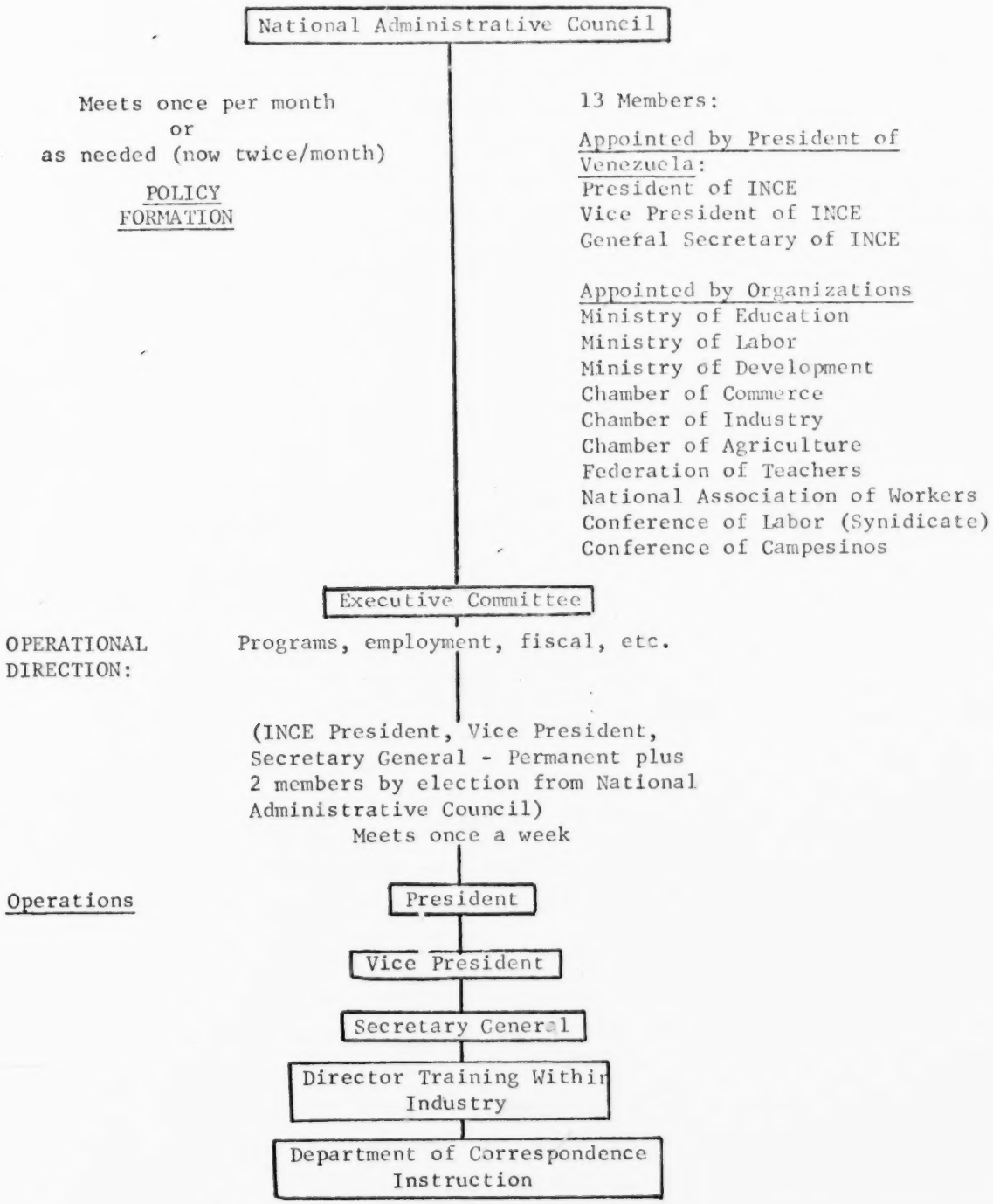
6. To guide the participants and other persons that will collaborate with the program.

7. To keep controls and the necessary systems needed to have a well developed program.

(Translated into English by Hiram Padron)
2/7/73

Appendix IV

INCE - Structure in Which Department Operates



Appendix V

Department Program Development Processes

(Note: not all processes are presented here; only those needing fuller explanation. Processes are a combination of administrative and instructional activities.)

Course Development

a. determination of need: by request from employers' groups, professional associations for training for banks, insurance companies, textiles, etc.; requests from industry, business.

b. selection, enrollment of participants (target populations): through INCE centers primarily.

c. determination of content: CINTERFOR manual; CINTERFOR sets standards of requirements for trades, other fields; there are also official INCE manuals in each trade.

d. course writing: assignment of specialist from within INCE or employment outside.

e. course development: conference with writer on how to write a correspondence course; submission and revision of parts developed; final manuscript to editorial department; conferences, revisions, production. No try out process.

f. production: graphics and production done at INCE

g. maintenance, updateing: on basis of instructor comments as result of using study guides, other materials. Printed inserts used to correct errors, update immediately according to need; all changes incorporated into new study guide at time of major revision. No regular revision schedule per course.

h. quality control of instruction: initial training of instructors; continuing informal training, upgrading.

i. collaboration with other departments: requests for services made to Departments of New Methods, Evaluation, Data Processing and Programming. Usually long lead-time in obtaining needed services--six months to a year or more.

Appendix VI

Curriculum and Courses

There are two general curricula--(A) General Culture, and (B) specific courses in trades and occupations.

Courses taught in 1972, and enrollments

Aritmetica Applicada I	7,500	A
Aritmetica Applicada II	800	A
Aritmetica Applicada III	300	A
Ciencias Applicada I	150	A
Ciencias Applicada II	150	A
Geometria	50	A
Formición Ciudadana	5,850	A
Deguridad Industrial	3,750	A
Ortografia y Radacción	3,750	B
Redacción Avanzada	100	B
Redacción de Informes	100	B
Mechanica Automatriz	100	B
Geografia de Venezuela	100	A
Ajuste	200	A
Cue es el INCE?	300	B
Contabilidad	300 (est.)	A
	23,600	

Note: Some courses have sub parts which may be enrolled in separately. For example, the courses in automobile and repairing have these sub courses.

Descripción General de Automóvil
Motor I, II
Lubricacción
Sistema de Enfriamiento
Bomba de Gasoline y Tanque
Sistema de Escape
Embraque y Caja Mecanica de Velocidades
Eje Transmisores y Cardanes
Suspensión del Automóvil
Dirección de Alinección
Ruedes y Cauchos
Sistemas de Frenos
Sistema Electrico I, II
Carburación

New Courses for 1973

Metodologia Pedagogica
Organización de Empresas
Administración de Personal
Terno
Fresado

Appendix VIII

New Methods Department

Objectives

The department is responsible for carrying out research on new methods and techniques of vocational training, as well as their application in the institutes' courses and programs. It is attached to the Vocational Training Research Division and performs the following functions:

1. Determine, by means of preliminary studies, whether it is advisable to investigate particular methods or techniques of vocational training.

2. Design and carry out experiments to determine the application of particular methods or techniques.

3. Determine the areas in which the methods or techniques under study may be applied.

4. Investigate the existence, on a national and international level, of teaching materials related to the methods and techniques under study.

5. Train the personnel necessary in the different departments and contributing enterprises in the use, production and administration of courses in which the methods and techniques under study are applied.

6. Produce proto-types of courses which justify the special design of instructional systems, with the integration of the appropriate media.

7. Prepare abstracts and reports on topics of interest in vocational training for the staff of the institute and contributing enterprises.

8. Coordinate the production of the INCE TECHNICAL BULLETIN (Boletín Técnico INCE).

9. Report its activities to the Vocational Training Research Division.

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